

Factors influencing use of home care and nursing homes

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Aim. This paper reports a study comparing the characteristics of patients who use home care services and those who are cared for in nursing homes, and identifying the factors that influence the use of these care settings.

Background. The increase in the functionally dependent older population has led to an increase in the number of nursing homes and home care agencies. It has become clear that, rather than disputing which is the better of these options, it would be better to determine the characteristics of patients who use the two long-term care services. Gaining an understanding of the unique characteristics of patients who are cared for by home care agencies and those who are cared for in nursing homes will be imperative for reforming and developing long-term care systems.

Method. The research model was based on the Anderson Model of Health Services Utilization. Interviews were conducted with 99 stroke survivors from two home care agencies and four nursing homes, and their family members, between May and December 2001.

Results. The patient characteristics that predicted greater use of home care rather than nursing home services were: being married, poor physical function, impaired cognitive function, higher rates of comorbidity, various medical complications, and/or number of catheters (e.g. urinary catheter, naso-gastric tube).

Conclusion. Contrary to the findings of previous studies conducted in countries with ageing populations, our findings indicate that in South Korea home care agencies, rather than nursing homes, provide care for severely impaired patients. This may be due to differences between countries in their long-term care systems and cultural attitudes toward end-of-life care. Our results will contribute to the development or reformation of long-term care systems in countries with ageing populations, and to the development of strategies for increasing access to these services.

Keywords: empirical research report, health services utilization, home care, interviews, long-term care, nursing homes, older people

Introduction

The increasing older population has increased the demand for and supply of long-term care services. Patients such as older people who suffer from a chronic disease, especially stroke, are often functionally dependent after recovering, thus increasing the need for long-term care.

Long-term care services comprise institutional care, such as nursing homes, and community-based care, such as home care. The merit of institutional care is that 24-hour skilled nursing care can be provided; however, it is an impersonal type of care and its cost is rising. Governments are increasingly shifting resources toward community-based care in the belief that this will both improve the quality of care provided and reduce the costs (Mottram *et al.* 2002). However, functionally dependent older people who are provided with home care still require family care. Thus, it has been shown that, when taking into account the cost of family labour in caregiving, home care is not cheaper than institutional care (Stommel *et al.* 1993, Chiu *et al.* 1997). Indeed, a recent study (Kim & Yang 2005) revealed that nursing home care is more cost-effective than home care for patients with more severe impairments.

Rather than dispute which type of care is better, it would be more useful to establish the characteristics of the types of patients who use institutional care or home care. This is likely to provide the fundamental information necessary to develop the most cost-effective services for each patient group. In addition, once the factors influencing the use of home care and nursing homes are determined, it should be possible to predict which service a patient is likely to require. This information will also help healthcare providers and policymakers to prepare and provide the services that these patients need. Since most ageing and aged countries are faced with the task of establishing or reforming long-term care systems (Flesner 2004), governments need to know the current condition of service use related to long-term care and to be able to predict how great the demand will be in the near future.

The study

Aims

The aims of this study were to compare the characteristics of patients who use home care and those who use nursing home care, and to explore what factors influence the use of these two types of care.

Design

This study was a cross-sectional survey. The research model for this study was based on the Anderson Model of Health Services Utilization (Figure 1). The Anderson Model describes factors relating to health service utilization as predisposing, enabling and need factors (Andersen 1995). In the present study, the original model was slightly modified to adapt it to home care and nursing home care.

Participants

In 2000, there were 13 private nursing homes and 38 home care agencies in South Korea, all of which were contacted by telephone to ask if they would participate in the study. Four private nursing homes and two home care agencies agreed to participate. The two home care agencies provided care for 80–90 patients, while one nursing home had 89 residents and the other had approximately 20 residents. To minimize the potential effect of type of disease on the results, only stroke survivors were interviewed, and all of these being cared for in the study settings were included. The primary diagnosis of 99 patients was stroke, and 49 of these people were being cared for by home care agencies and 50 in nursing homes. At each center, one Registered Nurse (RN) and one research assistant with an RN license collected data by interviewing the patients and their family members between May and December 2001. In order to reduce the variation between interviewers, they were informed of the purposes of the study, how to evaluate functional status in stroke patients, and provided with survey instruments along with precise guidelines for their use (Kim *et al.* 2000).

Instruments

Each patient's functional status was measured using the Resident Assessment Instrument (RAI). Its care assessment component is known as the minimum data set. This instrument was developed by the Health Care Financing Administration in the United States of America (USA) and is

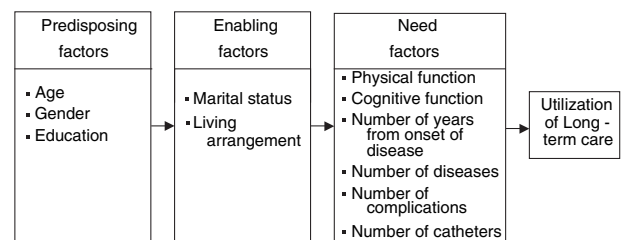


Figure 1 Research model.

currently being used as a standardized assessment tool in 14 countries (Hawes *et al.* 1997). The content validity, interrater reliability, and test-retest reliability have already been established in many countries (Hawes *et al.* 1995, Blaum *et al.* 1997). The validity and reliability of this instrument have also been proved appropriate in South Korea. Research comparing the relationship between the RAI, and Mini-Mental State Examination (MMSE) and Barthel Index has revealed correlation coefficients of $r = 0.419$ and $r = 0.401$, respectively; the kappa coefficient (consensus among raters) was 0.4 (Lee *et al.* 1999).

There are two types of RAI, one for nursing homes and another for home care agencies. However, continuous evaluation may be possible even when a patient moves from a nursing home to a home care agency or vice versa, because 47.1% of all items are congruent. The common items refer to the patients' health, functional status, service utilization and social environment (Morris *et al.* 1997). We used only the congruent items from both RAIs.

Physical function was determined by establishing the activities of daily living (ADL) for each patient. The ADL items include bed mobility, toileting, transferring and eating. Each item was scored on a scale of 1 (almost independent) to 5 (most dependent) to convert them to a comprehensive index, and the total score lay in the range 4–18 (according to the scoring system suggested by Fries *et al.* 1994).

Cognitive function was scored using the Cognitive Performance Scale (CPS) proposed by Morris *et al.* (1994). This is a combination of five items, which include coma, short-term memory, cognitive skills for daily decision making, making oneself understood, and self performance of eating. Cognitive function was categorized and scored on a scale of 0 (intact) to 7 (very severe impairment).

Ethical considerations

Research ethics committee approval was not required at the time of the study because the risk to the patients was minimal. However, a research committee did review and approve the study. An explanation of the survey was given to the patients and their family members. Participant privacy, anonymity and confidentiality were protected.

Data analysis

Chi-square tests and *t*-tests were used to identify the differences between the two groups, namely those being cared for by home care agencies and those in nursing homes. Predisposing factors (i.e. age, gender and education), enabling factors (i.e. marital status and living arrangements),

and need factors (i.e. physical function, cognitive function, number of years from onset of the disease, comorbidity, medical complications, and number of catheters, such as venous catheters, urinary catheters, nasogastric tubes, and endotracheal tubes) were compared between these two patient groups. Discriminant analysis was used to explore the factors influencing use of home care agencies and nursing homes. Statistical significance was accepted when the discriminant loading was greater than 0.3.

Results

The characteristics of the patients are given in Table 1. The mean age was 67.9 years (SD = 8.9) in the home care group, and was 7 years younger than that in the nursing home group ($\chi^2 = 11.29$, d.f. = 2, $P = 0.003$). The numbers of male and married patients were greater in the home care group than in the nursing home group. There were no differences in living arrangements between the two groups.

The ADL score, representing physical function, was 17.25 in the home care group and 10.04 in the nursing home group, which indicates that patients in the home care group were more physically dependent than those in the nursing home group ($t = 9.05$, $P < 0.001$). The CPS scores, representing cognitive function, were 5.45 in the home care group and 2.59 in the nursing home group, thus the home care group had more impaired cognitive function than the nursing home group ($t = 7.72$, $P < 0.001$).

There was no statistically significant difference between the number of years from the onset of disease in the two groups (3.35 and 4.6 years, respectively). The home care group suffered from a mean of 2.45 chronic diseases; the figure for the nursing home group was 1.12. Thus, there was more comorbidity in the home care group ($t = 4.23$, $P < 0.001$).

The home care group suffered from statistically significantly more medical complications, such as pressure ulcers, pneumonia and urinary tract infections, than the nursing home group (1.14 and 0.22, respectively; $t = 6.63$, $P < 0.001$). In addition, the home care group had statistically significantly more catheters, such as nasogastric tubes, tracheal tubes, venous catheters, and urinary catheters than did the nursing home group (0.55 vs. 0.06, respectively; $t = 6.62$, $P < 0.001$).

Discriminant analysis was used to predict the care setting of each group, based on predisposing factors, enabling factors and need factors (Table 2). This discriminant function was statistically significant (Wilks' Lambda = 0.34, $P < 0.001$). As shown in Table 2, the predictors that differentiated between the groups were marital status, ADL, CPS, the number of diseases, number of medical complications, and

Table 1 Patient characteristics

	Home health care (<i>n</i> = 49)	Nursing home care (<i>n</i> = 50)	χ^2/t	<i>P</i> value
Predisposing factors, <i>n</i> (%)				
Age				
Under 65 years	18 (36.7)	8 (16.0)	11.29	0.003
65–74 years	20 (40.8)	15 (30.0)		
Over 74 years	11 (22.5)	27 (54.0)		
Gender				
Male	21 (42.9)	9 (18.0)	7.23	0.007
Female	28 (57.1)	41 (82.0)		
Education level				
0–6 years	21 (42.9)	40 (80.0)	14.43	0.001
Over 6 years	28 (57.1)	10 (20.0)		
Enabling factors, <i>n</i> (%)				
Marital status				
Married	36 (73.5)	12 (24.0)	24.3	< 0.001
Bereaved	11 (22.4)	34 (68.0)		
Divorced or separated	2 (4.1)	4 (8.0)		
Living arrangement				
With spouse	12 (24.5)	6 (12.0)	3.31	0.190
Spouse and children	36 (73.5)	41 (82.0)		
Others	1 (2.0)	3 (6.0)		
Need factors (mean \pm SD)				
ADL*	17.25 \pm 2.37	10.04 \pm 5.05	9.05	< 0.001
CPS*	5.45 \pm 1.32	2.59 \pm 2.26	7.72	< 0.001
Number of years from onset of disease	3.35 \pm 2.64	4.60 \pm 5.14	1.52	0.132
Comorbidity	2.45 \pm 2.03	1.12 \pm 0.85	4.23	< 0.001
Number of complications	1.14 \pm 0.87	0.22 \pm 0.46	6.63	< 0.001
Number of catheters	0.55 \pm 0.50	0.06 \pm 0.23	6.22	< 0.001

*ADL, activities of daily living; CPS, Cognitive Performance Scale.

Table 2 Correlation between predictor variables and discriminant function

	Function 1
Age	–0.27
Gender	0.20
Marital status	0.41*
Education level	0.29
Living arrangements	–0.07
Activities of daily living	0.65*
Cognitive Performance Scale	0.56*
Number of years from onset of disease	–0.11
Comorbidity	0.31*
Number of complications	0.48*
Number of catheters	0.45*
Centroids [†]	
Home health care	1.39
Nursing home care	–1.36

*Loading > 0.3.

[†]Centroids are the mean discriminant scores for each of the dependent variable categories for each of the discriminant functions.

number of catheters. In other words, patients appeared to be more likely to use the home care than nursing home care if they were married, had poor physical function, had impaired cognitive function, and had more diseases, medical complications, or catheters.

Discussion

The aims of the study were to compare the characteristics of patients cared for by home care agencies and nursing homes, and to identify factors that influence the use of these care settings. The results revealed that marital status, ADL, CPS, the number of diseases, number of medical complications, and number of catheters were important predictive factors.

According to previous studies, when patients do not have spouses due to divorce, bereavement, or being unmarried, and have less opportunity to receive care in the home, they are more likely to be admitted to nursing homes (Finlayson 2002). Our results support those findings. On the other hand,

some of our findings are not consistent with those of previous studies. For example, we found that patients were more likely to use home care rather than nursing home care when they had lower functional status. However, studies conducted in countries with ageing populations have shown that patients with lower functional status tend to use nursing home rather than home care (Lee *et al.* 2001, Shyu & Lee 2002). In addition, we found that when patients had many chronic diseases, medial complications or catheters, they were more likely to use home care than nursing home care. This result is not consistent with those of prior studies in which it has been reported that patients with these conditions use nursing homes more than home care (Miller & Weissert 2000, Shyu & Lee 2002).

We do not believe that our results are due to confounding variables because predisposing factors, enabling factors and need factors were all included as variables in the discriminant analysis. Rather, we believe that these results may be due to differences in the healthcare systems and cultures of the countries in which the studies have taken place. That is to say, other countries, such as the USA, which has already become an *aged society*, have tried to reduce healthcare costs by decreasing institutionalization. They have restricted eligibility for nursing home care to patients whose functional status has deteriorated such that they are considered to be seriously disabled. Consequently, the functional status of patients in nursing homes is poorer than that of those being cared for by home care agencies. In South Korea, however, only hospital-based, and not community-based, home care agencies are legally permitted to provide home care (Park *et al.* 2001). All home care agencies in South Korea are hospital-based, and thus patients must be referred by physicians in the hospitals. Furthermore, since healthcare coverage in South Korea is based on the National Health Insurance scheme, skilled nursing services within home care agencies are reimbursed regardless of the seriousness of illnesses. However, cover is not provided for general nursing services (Park *et al.* 2001).

None of the nursing homes in South Korea, however, has a direct link to a hospital, and most patients in nursing homes come directly from the community. In addition, the National Health Insurance does not reimburse nursing home services. Thus, nursing home managers prefer to take only healthy and highly functioning patients, which is similar to the admission criteria of some of the assisted-living facilities in the USA (Borrayo *et al.* 2002).

These characteristics of the healthcare system in South Korea may result in home care agencies, rather than nursing homes, providing care for severely impaired patients. Balinsky and Rehman (1984) compared community-based home

care agency patients to hospital-based home care patients. They found that hospital-based home care agency patients were older, had more limited functional ability, had received more complex intensive care services, and had used more therapeutic services. This is because more patients are admitted from hospitals to hospital-based home care agencies, and they are more likely to need post-acute rather than long-term care. This helps to explain why in South Korea the characteristics of patients being cared for by home care agencies and in nursing homes are different from those of other countries.

Another possible explanation for the differences between our findings and those of studies conducted in other countries may be cultural differences. In many other countries, nursing homes, hospitals and home care agencies provide end-of-life care. Many patients spend the final days of their lives in institutions such as hospitals or nursing homes (Hogan *et al.* 2001, Gatrell *et al.* 2003, Teno *et al.* 2004, Thomas *et al.* 2004). In South Korea, however, if there is no hope of treating the disease or if death is imminent, patients and their family members prefer to be discharged to their homes rather than ending their lives in hospitals or other institutions. Although this culture is changing, end-of life care at home is still the dominant culture in South Korea. However, many of these patients need to go home with the catheters or other devices they have been using and are thus more likely to receive care from hospital-based home care agencies when they are discharged from hospitals to their homes. Such cultural issues in end-of-life care might contribute to the phenomenon that many patients who are in the end-of-life stage use home care agencies. Therefore, patients under the care of home care agencies are often more severely ill than those in nursing homes.

Studies investigating the relationship between home care use and patients' prognosis have found that patients whose prognosis was good or poor, rather than fair or guaranteed, used home care. Researchers have interpreted this finding as indicating that patients who have a good prognosis can use home care as a substitute for hospital care. Conversely, patients with a poor prognosis are more likely to use home care agencies for end-of-life care in the home (Williams *et al.* 1990, Helberg 1993). In South Korea, regardless of the reason, patients under the auspices of home care agencies are often more severely ill than those in nursing homes that provide only community-based long-term care.

Study limitations

This study included only those home care agencies and nursing homes that agreed to participate; the findings may

What is already known about this topic

- The healthcare or long-term care systems available influence both service use by older people and professional nursing practices.
- Lack of long-term care services causes an increased length of stay in acute hospitals, which then results in increases in healthcare costs for older adults.
- Patients with lower functional and health status are more likely to use nursing home care than home care.

What this paper adds

- In South Korea, which is a country with an ageing population, it is home care agencies, rather than nursing homes that provide care for severely impaired patients.
- The reasons underlying the relative use of home care agencies and nursing homes need to be established and examined with regard to the particular healthcare system and culture in each country.

therefore not be open to generalization. In addition, we did not include caregiver factors in the analysis, since those data were not available, and studies in other countries have reported that caregiver factors, such as caregiver burden, are important predictors of nursing home placement (McFall & Miller 1992, Tsuji *et al.* 1995). Therefore, in future the effect of the caregiver factor on the use of nursing homes and home care in South Korea should be investigated. Finally, provider factors, such as geographical region, that influence utilization of long-term care services were not considered here. Provider factors are important enabling factors. When providers increase access to the services, this results in greater use. Moreover, if the number of providers exceeds the demand, the *induced demand* results in increased utilization. Borrayo *et al.* (2002) reported that the geopolitical region was associated with a higher use of nursing facilities in USA. However, we did not include provider factors because in South Korea the current supply of long-term care services does not yet meet the demand.

Conclusion

Contrary to previous studies conducted in countries with ageing populations, in South Korea home care agencies rather than nursing homes provide care to severely impaired patients. This might be due to the characteristics of the South Korean healthcare system, in which there is little long-term care coverage, and to cultural attitudes toward

end-of-life care. These findings may help nursing professionals to understand the current factors that affect long-term care service utilization. The need-related predictors of home care and nursing home use suggest the need for nurses with more clinical specialties (Murashima *et al.* 2002, Algera *et al.* 2004). In addition, our findings will help to develop or reform long-term care systems through identification of the characteristics of patients who are receiving home care and nursing home care in both *ageing* and *aged* countries.

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Author contributions

EK, EC & KJJ contributed to the study conception and design, drafting of the manuscript and critical revisions of the manuscript for important intellectual content. EK provided the data collection and analysis. EK, EC & KJJ provided statistical expertise. EK obtained funding for the study and KJJ supervised the study.

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